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Canada, Railways, Canals and Telegraph
Lines, Standing Committee on, 1951
SESSION 1951

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HOUSE OF COMMONS

STANDING COMMITTEE

ON

RAILWAYS, CANALS AND
TELEGRAPH LINES

Chairman: L. O. BREITHAUPT, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 1

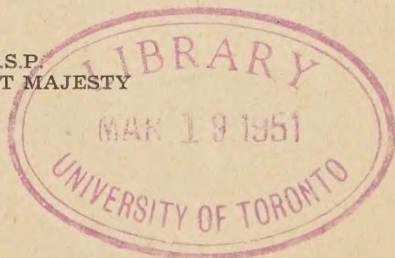
BILL No. 75 (Letter F of the Senate);
An Act to Incorporate Trans-Canada Pipe Lines Limited.

TUESDAY, MARCH 6, 1951

WITNESSES:

- Mr. Frank A. Schultz, Vice-President, Canadian Delhi Oil Ltd., Calgary, Alberta.
- Mr. Floyd Watterfield, Pipe Line Engineer, Oklahoma Contracting Corporation, Dallas, Texas.
- Mr. George Shattuck, of H. K. Ferguson Company Ltd., Marketing Engineers, Washington, D.C.
- Mr. Morris Natleson, of Lehman Brothers, Bankers, New York City, N.Y.

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1951



Chairman: L. O. BREITHAUP, Esq.,
Vice-Chairman: H. B. McCULLOCH, Esq.,

Messrs.

Adamson,	Gillis,	Murphy,
Applewhaite,	Gourd (<i>Chapleau</i>),	Murray (<i>Cariboo</i>),
Beaudry,	Green,	Mutch,
Bertrand,	Harkness,	Noseworthy,
Beyerstein,	Harrison,	Pouliot,
Bonnier,	Hatfield,	Richard (<i>St. Maurice-</i>
Bourget,	Healy,	<i>Lafleche</i>),
Cannon,	Herridge,	Riley,
Carter,	Higgins,	Robinson,
Chevrier,	Hodgson,	Rooney,
Clarke,	James,	Ross (<i>Hamilton East</i>),
Conacher,	Lafontaine,	Shaw,
Darroch,	Lennard,	Smith (<i>Queens-</i>
Dewar,	Macdonald (<i>Edmonton</i>	<i>Shelburne</i>),
Eudes,	<i>East</i>),	Stuart (<i>Charlotte</i>),
Ferguson,	MacNaught,	Thatcher,
Follwell,	Maybank,	Thomas,
Fulton,	McGregor,	Thomson,
Garland,	McIvor,	Weaver,
Gauthier (<i>Portneuf</i>),	Mott,	Whiteside,
		Whitman.

Clerk: R. J. GRATRIX

ORDERS OF REFERENCE

FRIDAY, 16th February, 1951.

Resolved,— That the following Members do compose the Standing Committee on Railways, Canals and Telegraph Lines:—

Messrs.

Adamson,	Gillis,	Murphy,
Applewhaite,	Gourd (<i>Chapleau</i>),	Murray (<i>Cariboo</i>),
Beaudry,	Green,	Mutch,
Bertrand,	Harkness,	Noseworthy,
Beyerstein,	Harrison,	Pouliot,
Bonnier,	Hatfield,	Richard (<i>St. Maurice-</i>
Bourget,	Healy,	<i>Lafleche</i>),
Breithaupt,	Herridge,	Riley,
Cannon,	Higgins,	Robinson,
Carter,	Hodgson,	Rooney,
Chevrier,	James,	Ross (<i>Hamilton East</i>),
Clarke,	Lafontaine,	Shaw,
Conacher,	Lennard,	Smith (<i>Queens-</i>
Darroch,	Macdonald (<i>Edmonton</i>	<i>Shelburne</i>),
Dewar,	<i>East</i>),	Stuart (<i>Charlotte</i>),
Eudes,	MacNaught,	Thatcher,
Ferguson,	Maybank,	Thomas,
Follwell,	McCulloch,	Thomson,
Fulton,	McGregor,	Weaver,
Garland,	McIvor,	Whiteside,
Gauthier (<i>Portneuf</i>),	Mott,	Whitman—60.

(Quorum 20)

Attest.

LÉON J. RAYMOND,
Clerk of the House.

Ordered,—That the Standing Committee on Railways, Canals and Telegraph Lines be empowered to examine and inquire into all such matters and things as may be referred to them by the House; and to report from time to time their observations and opinions thereon, with power to send for persons, papers and records.

Attest.

LEON J. RAYMOND,
Clerk of the House.

TUESDAY, February 27, 1951.

Ordered,—That the following Bill be referred to the said Committee:—

Bill No. 75 (Letter F of the Senate), intituled: "An Act to incorporate Trans-Canada Pipe Lines Limited".

Attest.

E. R. HOPKINS,
for Clerk of the House.

Ordered,—That the said Committee be authorized to sit while the House is sitting.

TUESDAY, 6th March, 1951.

Ordered,—That the quorum of the said Committee be reduced from 20 to 12 members, and that in relation thereto Standing Order 63 (1) (b) be suspended.

Ordered,—That the said Committee be empowered to print, from day to day 800 copies in English and 200 copies in French of its minutes of proceedings and evidence, and that Standing Order 64 be suspended in relation thereto.

Attest.

LEON J. RAYMOND,
Clerk of the House.

REPORT TO THE HOUSE

TUESDAY, March 6, 1951.

The Standing Committee on Railways, Canals and Telegraph Lines begs leave to present the following as a


FIRST REPORT

Your Committee recommends:

1. That it be authorized to sit while the House is sitting;
2. That its quorum be reduced from 20 to 12 members, and that in relation thereto Standing Order 63 (1) (b) be suspended;
3. That it be empowered to print, from day to day, 800 copies in English and 200 copies in French of its minutes of proceedings and evidence, and that Standing Order 64 be suspended in relation thereto.

All of which is respectfully submitted.

L. O. BREITHAUP, *Chairman.*



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MINUTES OF PROCEEDINGS

HOUSE OF COMMONS, Room 262,
TUESDAY, March 6, 1951.

The Standing Committee on Railways, Canals and Telegraph Lines met at eleven o'clock a.m. this day. Mr. L. O. Breithaupt, Chairman, presided.

Members present: Messrs. Applewhaite, Beyerstein, Bonnier, Carter, Conacher, Darroch, Ferguson, Follwell, Garland, Gauthier (*Portneuf*), Gillis, Green, Harkness, Harrison, Herridge, Hodgson, James, Lafontaine, Lennard, Macdonald (*Edmonton East*), MacNaught, McCulloch, Mott, Murphy, Murray, (*Cariboo*), Noseworthy, Pouliot, Richard (*St. Maurice-Lafleche*), Riley, Rooney, Shaw, Smith (*Queens-Shelburne*), Thomas, Thomson, Weaver, Whiteside.

In attendance: Mr. J. Decore, M.P.; Mr. John Ross Tolmie, Parliamentary Agent; Mr. Frank A. Schultz, Vice-President, Canadian Delhi Oil Ltd., Calgary, Alberta; Mr. Floyd Warterfield, Pipe Line Engineer, of the Oklahoma Contracting Corporation, Dallas, Texas; Mr. George Shattuck, of the H. K. Ferguson Company Ltd., Marketing Engineers, Washington, D.C.; and Mr. Morris Natleson, of Lehman Brothers, Bankers, New York City, N.Y.

On motion of Mr. Riley:

Resolved.—That the Committee recommend that its quorum be reduced from 20 to 12 members.

On motion of Mr. Applewhaite:

Resolved.—That the Committee recommend that it be granted leave to sit while the House is sitting.

On motion of Mr. Herridge:

Resolved: That the Committee recommend that it be empowered to print, from day to day, 800 copies in English and 200 copies in French of its minutes of proceedings and evidence.

On motion of Mr. Green:

Resolved.—That Mr. McCulloch be Vice-Chairman of the Committee.

The Committee commenced consideration of Bill No. 75 (Letter F of the Senate), An Act to incorporate Trans-Canada Pipe Lines Limited.

Mr. Decore, M.P., sponsor of the bill, addressed the Committee and introduced Mr. J. R. Tolmie, Parliamentary Agent for the Petitioners.

Mr. Tolmie was called, explained the purposes of the Bill and was questioned.

Messrs. Schultz, Warterfield, Shattuck and Natleson were called and heard regarding the project contemplated in the Bill; its practicability from a construction and engineering point of view; potential markets in the area to be served, and the proposed methods of financing the undertaking.

Mr. Schultz undertook to furnish the Committee with copies of a map of the route of the proposed pipe line as far East as Fort William, Ontario, and the route presently under consideration from Fort William to Montreal.

At the request of Mr. Gillis, it was agreed that Mr. W. E. Uren, Chairman, Dominion Coal Board, be called before the Committee at its next meeting.

It was also agreed that arrangements be made for Mr. W. J. Matthews, Director, Administration and Legal Services, Department of Transport, to be in attendance at the next meeting.

At 12.55 o'clock p.m. the Committee adjourned until Wednesday, March 7, at eleven o'clock a.m.

R. J. GRATRICK,
Committee Clerk.

MINUTES OF EVIDENCE

HOUSE OF COMMONS,
March 6, 1951.

The Standing Committee on Railways, Canals and Telegraphs met this day at 11.00 a.m. The Chairman, Mr. L. O. Breithaupt, presided.

THE CHAIRMAN: Well, gentlemen, we have a quorum so we can proceed with the business of the committee. The first item would be, if you so desire, to pass a motion to reduce the quorum. The usual quorum is 20 but last year I believe we had 12. What is your wish in this connection?

MR. RILEY: I move we reduce it to 12.

MR. McCULLOCH: I second.

Carried.

THE CHAIRMAN: We should also have a motion to sit while the House is sitting. The committee will likely have a good deal before it this year.

MR. APPLEWHAITE: I would so move.

MR. CARTER: I second.

Carried.

THE CHAIRMAN: In connection with the printing of the evidence is it your wish that it be printed? If so, would it be in order to print 800 copies in English and 200 copies in French? Judging by experience in past years that is about the way the demand would run.

MR. MURPHY: The meetings would be a lot shorter if we did not print at all.

MR. HERRIDGE: I would move that we print the numbers as suggested by the chairman.

MR. CARTER: I second.

Carried.

THE CHAIRMAN: I think that it would be desirable to appoint a vice chairman as we did last year. Mr. Henry McCulloch discharged those duties very well then.

MR. GREEN: I would so move.

MR. WEAVER: I second.

Carried.

THE CHAIRMAN: Mr. McCulloch, I congratulate you on your election; a popular choice.

The next thing, then, having disposed of the preliminaries, is to get down to the business of the day and the reference of the House, that Bill 75, Letter F of the Senate, an act to incorporate Trans-Canada Pipe Lines Limited, be considered. Mr. Decore, the sponsor of the bill is here. He is not a member of the committee but it is his right and privilege to introduce the subject matter of this bill. Would someone move that he be heard?

MR. McCULLOCH: I so move.

Agreed.

MR. DECORE: Mr. Chairman, I would just direct your attention to Mr. Tolmie who is acting as agent for the applicants and who will give you an explanation of the general outline of the bill. Mr. Tolmie is here, together with a number of witnesses who will be prepared to submit evidence on behalf of this proposed company.

If you will call on him the committee will hear such evidence as he has to offer. I think that is all I have to say at this time.

THE CHAIRMAN: If it is the wish of the committee I would call on Mr. Tolmie to come forward and outline the bill in general. Is that your pleasure?

Agreed.

Would you come forward, Mr. Tolmie? I would ask you to raise your voice so that everyone can hear what you have to say.

MR. TOLMIE: Mr. Chairman and gentlemen: As Mr. Decore explained in the House on second reading, this is an application to incorporate Trans-Canada Pipe Lines Limited, as founded and drawn up in strict accordance with the Pipe Lines Act which parliament passed in 1949.

If you have read the bill you have seen that it accords with the standard form of pipe line bills which the law officers of the Crown, of the Senate and House of Commons, the Department of Transport, the Board of Transport Commissioners, and I believe the Department of Justice, worked out in conjunction with the first application made to parliament. It is pretty well a standard form. I understand that the law clerk of the Senate and the law clerk of the House of Commons have passed this bill as to form, and there is no question about that.

The project, Mr. Chairman, as all members probably know by now, is to build a gas pipe line from Alberta east as far as Montreal, and with the possibility and the hope that it can be extended further east from Montreal at a later stage when the capacity is fully utilized. The present project is founded upon a survey of the route from Princess, Alberta, generally speaking following the main line of the Canadian Pacific Railway to Winnipeg, and then across the Great Shield touching on Port Arthur and Fort William. There is a possible alternative route from Fort William via the Canadian National Railway but that survey has yet to be made in detail because the engineer of the Oklahoma Engineering Company—who is here by the way—after having made a survey of the Canadian Pacific Railway Line was closed out by weather and found it impossible late last fall to complete the Canadian National Railway alternative.

As I said, the whole conception of the line is that it will follow one or the other of the main lines of the railways into the populated areas of Ontario and along the Canadian National Railway route from Toronto to Montreal. The relative ruggedness of the terrain between Kenora and Sudbury has given some people the idea that this project is a little bit difficult, or even impossible, and for that reason we have today the engineer who made the survey on behalf of his company. I think that he will be able to give you some enlightening comments on the type of country that these pipe line builders have met in other countries and that the Shield country of Canada is not as formidable as we have been led to believe, largely because of going over it by train and 'plane.

The line is to be a 30-inch line from Alberta through to Toronto, and then a smaller line from Toronto to Montreal—24 inches—with laterals of varying sizes off the main line to serve communities on either side of the pipe line within economic reach.

Now, we have with us Mr. Shattuck of the H. K. Ferguson Engineering Company Limited who has done, in conjunction with a group of marketing engineers, a survey of the marketing area to be served. It is roughly a 20 mile strip, 10 miles on either side of the main line, with occasional laterals going further. He has made an analysis of the market in that area which, by the way, includes about 62 per cent of the urban population in the four provinces across which the pipe line goes. That 62 per cent of the urban population, namely 133 communities, represents a total of over 3,600,000 people, so that it is quite a substantial marketing area. Mr. Shattuck will tell you how he has proceeded to analyze the fuel consumption possibilities in that area.

We also have with us Mr. Frank Schultz, vice president of the parent company, Delhi Oil Company of Texas, and of Canadian Delhi Oil Company Limited of Alberta, which companies have been carrying on this work up to now. They have spent a considerable amount of money not only in surveys but in active gas exploration in Alberta and they have had rather phenomenal success in discovering new gas fields, in the time they have been operating—since June or July of last year. This company has proceeded on the basic belief that they must show and demonstrate, not only to Canada, but particularly to Alberta, that there is gas there. That is I think in accordance with the policy of the Alberta government as recently announced—that gas companies seeking the right to export gas should show an aggressive attitude with regard to exploration and discover fields that possibly everybody assumes are there but have not been discovered and have not been sought after because there was no market in sight for the gas.

Finally we have a representative, a partner, of the banking firm of Lehman Brothers, New York, who have followed this project from its inception and who have indicated a willingness to organize an underwriting group to sponsor the underwriting of the necessary funds. The funds to be raised are very considerable, estimated at \$250 million, and it is a very heavy financial commitment to make.

On the basis of the work done to date and the discoveries being uncovered by Canadian Delhi of Alberta, this firm believes, and all those behind it, that this project is economically sound and can be organized and built within a reasonable time.

It may be that the steel shortage—I think that was raised in the Senate—may cause a delay at the present time. We are no better off in that respect than many other projects in the country. On the other hand we all trust that the steel shortage, and also the international picture that gives rise to it, is not a permanent situation. By the time that the three bodies who have to pass on this—parliament, the Alberta Conservation Board, and finally the Board of Transport Commissioners who will have to licence and authorize the building of a line over a particular route—have dealt with this project and passed it, we hope there will be some brightening in the steel situation. After all the fuel requirements of middle eastern Canada have a certain relative priority, we believe.

Well, Mr. Chairman, if there are any questions which either I or any of the special representatives of the various aspects of the project can answer we will be very glad to do so. I do not want to bore you with a rather long detailed harangue on the project. I am sure you have the meat of it.

The CHAIRMAN: I think you have covered the rough outline of the project quite well.

Gentlemen, would it be your wish at this time to question Mr. Tolmie or to hear these other three men on the various aspects of the project? We have a man here in the engineering department; we have one from the banking department which is very important; and we also have a practical man who understands gas wells.

Mr. TOLMIE: We also have the marketing man Mr. Chairman.

The CHAIRMAN: What is your wish as to procedure? Do you wish to question Mr. Tolmie at this point?

Mr. MURPHY: Why not hear the rest of them first, Mr. Chairman?

The CHAIRMAN: Does that meet with the general wishes of the committee?

Agreed.

Mr. TOLMIE: I would suggest you first hear Mr. Schultz, the vice-president of Canadian Delhi Oil Company Limited, and the vice-president of the parent company. He possibly might start with the picture of gas development and the exploration program.

The CHAIRMAN: Mr. Schultz, could you come forward and give us a rough outline.

Mr. GILLIS: Before you proceed, may I ask a question? This particular project is going to affect in an adverse way many of the coal mining operations in the maritimes. Is it possible to have some representative from that side of the picture to ascertain just what this particular project is going to do to that industry? I think they have a right to state their case before this kind of a bill is adopted. Is it possible to do that—to have some representative from the coal mining industry in eastern Canada?

The CHAIRMAN: Would you not be in a position to ask those questions as a member of the committee?

Mr. GILLIS: I am not representing that industry but if it is going to cut into the market to the extent I think it is, then I think they should have the right to make some representations to the committee directly from the east.

Mr. MURRAY: Coming from British Columbia I would take just exactly the opposite view. We have huge coal deposits out there and we have also huge deposits of natural gas. We cannot turn the clock backwards; this is a progressive business, and I do not think that the coal mining people have any interest in it at all.

Mr. GILLIS: May I say that this pipe line bill does not affect British Columbia at all. This is going straight down to Quebec City ultimately, as I understand it. What I have in mind is this: that the main market for Nova Scotia and New Brunswick, the only economic market, is about 100 miles west of Montreal. If this pipe line went in and supplied the full requirements for that area, it would practically cripple the market which New Brunswick and Nova Scotia have for coal in Quebec, their main market.

Mr. FERGUSON: Mr. Chairman, the company anticipates that the gas will be salable and if it is salable it will be to the great advantage of the people there. Now, the advantages of this gas going to Quebec—if it ever does reach Quebec—should far override coal to the people of Quebec City. I believe it would override even a situation in which the coal mines are actually put out of operation. Surely we will not say: do not give these people the advantages of using gas because it might put some Canadians out of work. This country has never done that since its inception.

The CHAIRMAN: I do not think we ought to get into that argument at this stage. We have as a committee the right to hear anyone who wishes to be heard on this question and we can deal with Mr. Gillis's suggestion at a later time. At the moment the committee has requested Mr. Schultz to come forward and I think we should hear his remarks on the project. Mr. Schultz, will you take the stand, please.

Mr. Frank August Schultz, called:

The WITNESS: Mr. Chairman, considerations for this project were conceived upon broad principles, principles which are common to all gas line projects.

No. 1: We had to be able to supply gas to the consuming areas at a price which they could afford to pay for it. Now, we feel that we can supply this gas at a price which is cheaper than the corresponding charge for coal or oil.

The second consideration was that it should be an all-Canadian project, that it would be Canadian gas transported over an all-Canadian line, and that one hundred per cent of the consumption would be in Canadian cities. It would be a project over which the Canadian government would have complete jurisdiction both as to the projected line and, ultimately, as far as the prices which are realized on the sale are concerned.

The third consideration was that the project had to be economically feasible. In that respect we hired outstanding firms to give opinions regarding feasibility of the projected pipe line route and examine, in some detail, the various factors involved in constructing a pipe line over a difficult terrain. We are satisfied, at this stage, that the line is entirely feasible. We are going ahead with our project as far as we can, particularly in developing gas reserves in Alberta to supply this line.

We recognize that to obtain this end product we must first get clearance from the Alberta government. To gain that clearance we have to develop gas reserves, we have to demonstrate that the company is interested in finding gas, and that the gas could be isolated and produced. We are committed to the principle of spending several million dollars a year looking primarily for gas to be dedicated to this eastern project. At the present time our company has drilled twelve wildcat prospects. Of these prospects eight have ended up as proven new and heretofore undiscovered gas areas.

We are cognizant of the Alberta Board's requirements that a gas company which wishes to build a line has to find additional resources. We are committed to the principle of carrying forward this program until such time as we can convince the Alberta board that sufficient gas reserves have been developed and that export from Alberta is feasible.

In carrying on a step further with the pipe line we knew that we had to have adequate information on the gas reserves from independent experts. We have hired the firm of De Golver and McNaughton, which firm has a fine reputation in our country for evaluating reserves of oil and gas. They are now carrying forward their survey of the gas reserves in Alberta. That work will be finished I think by April 15.

We are satisfied at this stage that the gas reserves are adequate in Alberta to justify this line. We are going to try to convince the Alberta government that our position is a correct one. We shall carry on our wild-catting program until such time as we can convince the Alberta government.

No. 2: You may be interested to know about the marketing situation. We are satisfied at this stage that adequate markets exist in the eastern part of Canada to consume all the gas that we can produce and move through this line. We have taken the entire risk for the expenditure of this money of our own stockholders, and we anticipate that we shall have several million dollars tied into wild-catting, and several hundred thousand dollars tied into the various services prior to the time we are able to get into production. That is the broad range of principles and we would be glad to answer any specific questions in regard to the project if anyone wishes to ask them.

The CHAIRMAN: Thank you, Mr. Schultz. Are there any questions before we call on the next witness?

By Mr. Gillis:

Q. Mr. Chairman, I think that Mr. Decore has given us a very fine survey of the project in the pamphlet which he supplied entitled "Trans-Canada Pipe Lines Limited". I see on page 3 of that pamphlet of explanation the following statement:

The existing gas companies with their mains, storage tanks and stand-by coal gas production facilities will continue to handle the retailing.

Might I ask Mr. Schultz what these stand-by coal gas production facilities, for example, would consist of?—A. Mr. Chairman, that means "stand-by coal and gas production". In other words we do not feel that in the early stages of this project we can supply all the gas that will be required by the consuming areas, and we feel that it may be necessary to mix some of this natural gas from Alberta with coal gas in order to take care of the demand.

Q. What process would you use to extract that gas from coal?—A. We would be only a transporting company. The local utilities which already have coal gas making facilities to take care of the demand might want to mix some proportion of coal gas which they could manufacture with our natural gas.

This project of ours is entirely a transmission project. We have no desire to retail gas to the ultimate consumer. We merely want to produce and to buy gas in Alberta and transport it to the various utilities that exist now or that may be formed.

Q. Then am I right in thinking that possibly a certain area would be held to setting up a low-temperature carbonization plant for the purpose of extracting gas from coal?—A. No, sir. They could operate with the gas we furnish. We have adequate gas to take care of their needs; but they might want to have stand-by facilities. That would be up to each local distributing set-up.

Q. I thought that perhaps extracting a by-product from coal might off-set the fears which have been expressed that the coal industry would be hurt.—A. It is a situation over which the transmission people would have absolutely no control. We would contract with the local utilities to sell natural gas to them at the city gates. What they might do with it after that by way of mixing it with coal gas would be their responsibility.

Q. But you think there is a possibility of there being a combination of the two?—A. Yes, sir. It has happened in areas in the United States where natural gas comes in; and we can foresee that possibility prior to the time we have built up the pipe line to a capacity load.

By Mr. Green:

Q. I presume those local companies which are already producing gas from coal would continue to do so, using their production only as an auxiliary to your natural gas?—A. In the beginning that would seem likely to be the case they would mix the two products. But ultimately we feel that we would be able to supply all the natural gas that would be required. I think the reason why they will want to change to natural gas as rapidly as possible is that coal gas has a B.T.U. content or roughly five hundred B.T.U. per cubic foot, while the gas we furnish will have a content of one thousand and twenty-four B.T.U.s per cubic foot. In other words, they will get twice the heating value out of natural gas that they do out of coal gas.

By Mr. Harkness:

Q. Are there not considerable technical difficulties involved in switching from coal gas to natural gas and vice versa, or in mixing the two together? I know that stoves built for coal gas will not work with natural gas and vice versa.—A. That is right. Where artificial gas is now being used all the burners will have to be changed. In other words, the mixture of air and gas will differ with the two types of gas.

Q. The point I have in mind is this: do you not think that the operation of a stand-by plant which would presumably have for its purpose the mixing of coal gas with natural gas would be extremely difficult?—A. As a matter of practical approach, an amount of coal gas mixed with natural gas would bring the average B.T.U. content of the mixed product up to 850 B.T.U. or something like that.

By the Chairman:

Q. But let us suppose you had a failure entirely of the natural gas. That would present other difficulties, would it not?—A. Yes, it would; it certainly would! From our experience with pipe lines, we recognize the possibility that we might have a blowout in this line, so we are engineering precautionary measures into this line that should reduce blowouts to a minimum. In the

United States where they have good roads along these large pipe lines they have standby equipment, say, every ten miles; they have an extra joint of pipe; every fifty miles there may be an extra trenching machine or an extra welding machine. On our project we will double the safety factors; we will put a joint of pipe every five miles; we will have welding machines at somewhat closer intervals so that if there is an interruption of service the time involved to repair it will be at a minimum.

THE CHAIRMAN: I suppose that being on the railway's right of way these things will be noticed quicker than they would if the pipe line went through the bush?

THE WITNESS: They will be noticed immediately in any event. We will have to have small planes that fly the entire length of the route daily, and being close to the railroad will facilitate our acting in case of failure—in other words, we will be able to move equipment over the railroad within a matter of minutes after trouble has been localized.

By Mr. Applewhaite:

Q. Is there any estimate as to the length of time over which this project would continue to operate to capacity, I mean an estimate based on the reserves of gas?—A. Our overall thinking of this project is that, if I understand your question properly, we plan on two nine months long construction periods to construct the entire line. When we get an export permit from the Alberta government we know it will have to be in terms of 365 million feet.

Q. Suppose you do get your export permit, have you any idea as to how long you can remain in operation before you have exhausted the available supplies of gas?—A. We are asking for a permit for twenty-five years. Our experience in other natural gas areas has been that, when a pipe line has been developed and producers actually go after finding gas, the gas reserves double and triple and quadruple rapidly. We are not disturbed on that. We are asking for a twenty-five year permit. We are convinced that the reserves in Alberta when they are finally determined will take care of a much longer period of time.

Q. How long would you have to operate at normal capacity before you could return your capital costs plus all operating costs and so on?—A. We think that the twenty-five year period will liquidate the entire investment.

By Mr. Riley:

Q. What is the B.U.T. difference between natural gas and propane?—A. Well, propane—I am speaking from memory—runs about 4,000 B.T.U.'s per gallon. I cannot make a direct comparison as I do not have the data. Dry natural gas will be in the range of 1,024 B.T.U.'s per cubic foot.

Q. What do you estimate the effect of natural gas will be on the propane business in the different cities?—A. I think it will have an effect in the cities proper. Where propane and butane are sold natural gas will replace them, as natural gas is cheaper. In the rural communities it will have no effect, because in the final analysis where we can sell gas depends on economic conditions. A sufficiently large community we can serve, but to justify a line today it will have to be an economic sound situation. The smaller communities far removed from the right of way will continue to use propane and butane.

By Mr. Ferguson:

Q. Have you a map showing the proposed route that the pipe line will follow?—A. We have a tentative map only. As soon as we finish our survey on the Canadian National Railways right of way we will finalize our proposed right of way, but until we can survey that Canadian National Railways route we are

following very closely the Canadian Pacific Railway route. In the final analysis the project has to be built along the cheapest right of way, the idea being that the cheaper we can construct this line the cheaper we can furnish gas to the domestic commercial and industrial users in the east.

Q. Have you established any points yet that will be permanent, I mean that you intend to construct through on the route across Canada?—A. Yes, sir..

Q. Have you a copy of that map available?—A. We have a copy of the overall map but the route shown on that may have to be changed somewhat.

Q. Is that map available for us to see?—A. Yes.

Q. I would suggest that we have it. It might be important to members representing some communities in Canada as these communities might want to know where the pipe line will come through.—A. We will be glad to furnish it, with the understanding it is preliminary and the route may change somewhat.

Q. Well, any change that will be made will not be very great. It will be say a quarter or a third or something of that nature.—A. No change as to specific areas, that is all.

Q. How soon can you have that map made available?—A. We can furnish it to you today.

THE CHAIRMAN: I think each member of the committee should be supplied with a copy of that map, or, if you care to bring a larger map and show it to the members of the committee at an adjourned meeting, that might be satisfactory. I imagine every member of the committee would like to see that map. I think that is a good point. If as you say you only have fifteen of those maps I do not think you have enough for all the members of the committee.

MR. FERGUSON: By photostating the maps you could have some ready for this afternoon and those with what you already have will be sufficient.

THE CHAIRMAN: We will likely adjourn this meeting until four o'clock. I do not think we can get finished with this work this morning. If you can have a copy of the map for this afternoon's meeting that will be satisfactory.

MR. MOTT: Mr. Chairmain, have we got any information in this committee regarding this line that we heard so much about last year, the natural gas line coming in from Detroit and Buffalo into Ontario and coming down as far as Montreal. Have we any information regarding that particular line, that is coming in? It seems to me that gas coming in over that line could be supplied at a much cheaper rate than over this long line from Alberta. This line was mentioned on many occasions during the discussion last year, and I am just wondering if any information is available on that project?

THE CHAIRMAN: There is no information on that in the hands of the committee at the present time.

MR. MOTT: Can we get any information on that?

THE CHAIRMAN: I suppose there is something available but there are so many pipe lines under consideration that I doubt whether that is germane to this question.

By Mr. Follwell:

Q. Has the Delhi Oil Corporation of Texas any interest in the gas business in the United States? If so, I would like to know if they have a line that could come to eastern Canada from that way?—A. We are in the gas business in the United States. We have discovered and carried out other projects of this nature where it meant developing a new area. The project I am particularly thinking of is in Northwestern New Mexico, the San Juan basin, in which we were the prime company developing the reserves and carrying through that project, building a twenty-six inch diameter line from those reserves to California, where the reserves were sold to the Pacific Gas and Electric,

and they transported the gas to the San Francisco area. We have no line coming into the eastern part of the United States; all of our lines are in the New Mexico-Gulf Coast area.

Q. Recently, there was a company,—the Eastern Gas Syndicate,—which requested municipalities in Ontario to have a vote taken as to whether or not they would give a franchise to this particular gas company to bring gas in over that route that Mr. Mott mentioned, in through Detroit, down through Windsor and so on. Their intention was, I think, to take Alberta gas and trade it across to the western United States and bring Texas gas up here.

The point I am trying to make is, are you contemplating any such deal as that or are you interested in Canada only and are going to bring the gas from Alberta down through Canada to this area?—A. Our only interest is bringing Alberta gas to the eastern part of Canada. We think that the difficulties are insurmountable for taking western Canadian gas down to the western coast of the United States and working out an exchange; the selfish interests involved in the various communities, we think, will prevent an effective exchange.

By Mr. Conacher:

Q. Mr. Schultz, what is the longest gas line in existence now, and secondly, does Texas gas come to Detroit at this time?—A. I believe that is right. The longest line at the present time is the Transcontinental Pipe Line Company which comes from the Mexican border, McAllen, Texas, to New York City. That line is approximately 1,840 miles long. Ours would be 2,200 miles. Their costs were approximately \$245 million; we estimate ours at \$250 million. They have, as I remember, a thirty inch line, which is what we contemplate. They have an ultimate deliverability of 550 million cubic feet a day; we expect the same thing.

By Mr. Ferguson:

Q. Dr. T. A. Link, a very eminent western geologist, yesterday in Toronto made a statement that to heat and cook and put to all the necessary uses that he could put natural gas to in a home would cost \$150 a year in Calgary, compared with the present methods used in the city of Toronto for the same purposes at a cost of \$600 a year. In your opinion what difference would it make to users of natural gas in the city of Toronto, in comparison with the same home in Calgary at \$150 and the same home in Toronto at \$600? With natural gas what would be the saving made?—A. That is a question we cannot answer at this time. We know we can sell natural gas far cheaper. Our marketing survey will be finished some time in April. The mechanics of the pipe line are this: We will have a fixed investment; we think it will be \$250 million. The more gas that we can put through that pipe line the cheaper we can sell each 1,000 cubic feet of it. Now, if the marketing survey shows we can immediately sell 365 million cubic feet a day, then we will have one price; if we can only sell 250 million cubic feet a day, we will have the same fixed investment and a smaller number of units of gas, therefore the gas will have to be higher in price. Now when that marketing survey is made we will be able to come up with a price. It is still in the preliminary stage and will have to be determined in the light of facts as they develop.

Q. You were talking about your charter. Can you give us any idea what the saving might be to the consumer through the granting of this charter. If it is granted and a pipe line comes into operation and you are in a position to deliver gas, will it be an advantage for the person to use gas? Do you think

it would be an advantage to the consumer?—A. Yes, as I understand it, most of the gas being consumed now is artificial gas, and the immediate saving that we will be giving consumers will be the increased value in the gas. Now, we have no jurisdiction over what the local utilities charge for it; but we of course will have to have a price that will completely liquidate this investment over the years. We hope that we can sell gas at a price which will be equivalent in B.T.U.'s to coal or oil. We know from past experience that we can undersell coal and oil, that people will want natural gas. Think of the convenience of it. People can sit upstairs and turn the heat on or off as they want. Think of the cleanliness of it; getting away from soot; not having to carry out the ashes. Those are all important factors to consumers, and if we can undersell coal and oil we are confident that people will want natural gas. When this marketing survey is finished we will be able to say specifically the price at which we can sell gas in Toronto, Montreal, and Winnipeg, and so on.

Q. I want to ask about your American company, has it any lines at the present time headed for Canada?—A. No, it has not. Our lines are all to the south-west.

Q. You are not negotiating at the present time on any deal with anyone to pump any gas from the United States into Canada?—A. No, sir, we have no project under way at this time.

Q. As you know, there are a number of companies in the United States today which are piping gas in from the States to points like London, Ontario. If you have a franchise for a pipe line coming down from western Canada to Hamilton and Toronto, those cities would be pretty well in the centre of the vice as regards price.—A. I can assure you that we have no project under contemplation at the present time, nor have we had in the past, for bringing gas anywhere east. All of our reserves are in Texas and New Mexico and are transported to California; most of that gas will go to California or to, say, Salt Lake City, in Utah.

Q. You are not connected with any companies at the present time running into Canada, or partly into Canada?—A. No, sir.

Q. Would any block of your stock be held by people who have the idea of coming into Canada?—A. That is a question I cannot answer.

Mr. CONACHER: The public will be allowed to buy, will it not?

The WITNESS: Yes sir, and we recognize the principle. We want and need Canadian participation in this entire project, in all stages of the financing.

By Mr. Garland:

Q. How fast will you be able to get on with this project, assuming that you get the necessary authority and assuming that materials are available, how much time would then be necessary, from the time you get the authority, to deliver the goods to central Ontario?—A. We contemplate two nine month long construction periods, during December, January, February and part of March. There would be very little we could do at the end of the first nine month period, but we think that deliveries could be started at the end of nine months, that the project could be completed in a construction period of 18 months.

Q. You would be able to start delivering gas to eastern towns then?—A. Yes, for all practical purposes.

By Mr. Smith:

Q. Would you care to comment on what proportion of the gas would be used for domestic purposes and what would be used for commercial purposes from the supply from the western field?—A. I think Mr. Shattuck will have

to answer that question. In all likelihood the situation is one which would be rapidly changing. However, I can say this, that we know from experience that the domestic load would increase rapidly during the years in relation to the commercial and industrial load.

Q. What would you say about the use of gas, for instance in manufacturing, in the manufacture of steel? Is there much use for gas in the manufacture of steel? Would the cost be low enough to be attractive?—A. Well, only in converting scrap, or reducing it.

Q. You have to use coal in any steel plant in order to make coke for blast furnace use.—A. That is right. It is my impression that for iron ore you have to have coke to reduce the ferric iron to elemental iron, and you can only do that by burning off the oxygen in the ferric iron of the ore. The reduction of scrap, of course, can be done with natural gas, and as a matter of fact it is now being done in Kansas city. It is a matter of burning out the oxygen.

Q. Do you take into consideration that the amount of coal used in the steel manufacturing industry, and the amount of coal used for the melting of scrap, is relatively small?—A. Very small.

Q. Therefore they will still have some use for coal in the manufacture of steel?—A. Gas cannot at this time replace coal in the steel industry.

Mr. FERGUSON: Unless there is a utilities set-up in any city, town or village to handle gas that particular community will not be served by your pipe line?

The CHAIRMAN: That is a good question, what would be the situation in such cases?

The WITNESS: Our idea on that would be this. The transmission company would transport the gas. We hope to be able to get people in these communities along the right-of-way to obtain local franchises and distribute the natural gas. We are perfectly willing to co-operate with them and work with them in every way. Gas will be much easier to sell in cases where communities have distribution facilities already in existence, but in a lot of these small communities they will have to install facilities. We intend to co-operate in every way with the people in cases like this to encourage them to install facilities which will develop the market for our product.

Mr. FERGUSON: At first you are going to market principally with the larger industries?

The WITNESS: Yes, we recognize that we will have to depend on the larger industries to begin with, that we will have to sell to the larger industries such as the paper mills, and so on; until such time as groups or individuals will take the responsibility of setting up local utilities in towns which are not now supplied with gas.

The CHAIRMAN: After all, that would not be an expensive procedure in most cases because they would not have to build much equipment.

The WITNESS: That is right.

The CHAIRMAN: It would be different in the case of some of the older communities where they would probably have to consider the cost of their compressing equipment and other expensive pieces such as retorts. I think, however, that would probably take care of itself.

By Mr. Murphy:

Q. What about the relative value of the fuel you would supply as compared to that at present available? Would it be as high in value?—A. Yes, there would be an advantage to them in this way, these communities would get a gas which will have a minimum of 1,000 B.T.U.'s in it.

Q. You would have a 1,000 B.T.U.'s minimum?—A. Yes, sir. We dehydrate it and take out any liquid that may be in it and then it is dealt with as dry gas. We guarantee a minimum of 1,000 B.T.U.'s.

Q. Can you give us any idea of the price at which you would be able to lay it down at the principal points?—A. No, but it would be more or less stable. Mr. Shattuck can answer that specifically and in greater detail than I can; I mean regarding prices.

Q. Can you give us any details as to the cost of the gas?—A. What it will cost at different points? We recognize that the cost in Winnipeg will be cheaper because of the shorter distance over which it is transported. The general rule of thumb on this—I cannot give it to you exactly—is that it costs between a cent or a cent and a quarter per hundred miles to move the gas; so, in Toronto, let us say, which is approximately a thousand miles further east than Winnipeg it would cost correspondingly more to move the gas to that point.

Q. Then the distributors will have to supply certain facilities, and presumably that would add to the cost?—A. Well, we will have no control over that, that will be up to the local authority; but the minimum B.T.U. value will be in the gas.

Mr. FERGUSON: When a pipe lines bill was before this committee last year, if I remember correctly, I believe we were told that the gas could be sold at practically the same price at the far end of the line because of the general scheme of over-all distribution of cost and the amortization of cost.

The CHAIRMAN: I do not think that is a good question here because this firm had nothing to do with any previous witnesses.

Mr. FERGUSON: Well, Mr. Chairman, this company is concerned with this business; and I recall distinctly that last year we were told that that company could deliver it at the far end of the line at practically the same cost. Here is a company asking for a charter for a 2,200 mile line and they say that they can deliver it cheaper in Winnipeg than in Toronto.

The CHAIRMAN: Oh, I see what you are getting at. Is it a flat price, or how do they intend to deal with it?

Mr. FERGUSON: Yes.

The CHAIRMAN: Perhaps another witness could give us the details on that.

The WITNESS: All I am saying is that as a general proposition I do not think we would be able to deliver gas for the same price at Toronto as at Winnipeg. The cost to us would be lower at Winnipeg; we could not sell it for the same price in Toronto.

Mr. FERGUSON: There is a question I would like to ask you right here. That company which was before the committee last year put in an overall cost to meet the requirements of the whole population, and they proposed to sell it at the far end at about the same price as to all points along the line.

Mr. GREEN: That is what they were trying to tell us, that the gas would be cheaper near Vancouver.

By Mr. Smith:

Q. Can you tell me anything about extending this line further east eventually so that it will reach the Maritime area?—A. We have no surveys on pipe line costs, or on marketing conditions around the Maritimes. If there were a large enough market and we could build a line with a reasonable cost, at some future stage we might go that way with it. We would also have to consider the economic aspect of it and the matter of markets, together with the cost of transportation. They would be the controlling factors.

Q. And you feel now that the distance you would have to carry the gas would be too great in the light of present market demand?—A. Yes.

Q. But if manufacturing should build up in the Maritimes you would be ready to consider extending this pipe line down there?—A. That is right, under proper government permission we could go ahead, and we would—when and if market conditions justify it.

The CHAIRMAN: Is there anything else you would like to ask Mr. Schultz? There have been some good questions asked and I think the answers have been very helpful, Mr. Schultz; thank you, very much.

Perhaps you would like now to have me call Mr. Shattuck, or the engineer.

The WITNESS: I think the next witness should be Mr. Warterfield, of the Oklahoma Engineering Company, who would explain the pipe line construction and progress and the surveys which he made. After that we could deal with the mining end of it, if you wish.

The CHAIRMAN: Good.

Mr. Floyd Warterfield,—Pipe Line Engineering Company and Oklahoma Contracting Corporation called:

The WITNESS: I will have to apologize as I have been sick with the "flu" but I will try to talk as loudly as I can without barking. I feel just like a bull pup with a bone in his throat.

My commission in connection with this project was to survey a pipe line route from the province of Alberta into the eastern consuming markets and areas. By way of self qualification perhaps I can mention that I have been doing this sort of thing for 31 years and if there is anything that a pipeliner likes better than locating a pipe line it is the chance to go out and locate another pipe line so that he can build that one too. I have been coming to Canada since 1922 and I have had opportunity to study the topography and, like a postman, a holiday for a pipeliner means that as he crosses the country by train or 'plane he just mentally visualizes how he could build a pipe line through that area. I have had a lot of opportunity for that sort of thing in Canada.

Mr. DECORE: In view of the technical nature of this evidence could we have the qualifications of this witness?

The CHAIRMAN: Yes, although I think Mr. Tolmie gave them to us in a general way.

The WITNESS: I will be glad to give them to you.

The CHAIRMAN: You are a practical man.

The WITNESS: I am a graduate mechanical engineer of the University of Oklahoma. I graduated in 1920. I have followed pipe line construction, design, engineering, and operation, during the succeeding 31 years.

For twenty-five years before I started a business of my own I was employed by the Standard Oil Company of New Jersey and I have had actual supervisory experience on design, location, construction, operation and installation of pipe lines and systems in the following states: Oklahoma, Missouri, Kansas, Louisiana, Texas, Illinois, Arkansas, Wyoming, Alabama, Mississippi, Georgia, North Carolina, South Carolina, Tennessee, Virginia, Pennsylvania, New Jersey and New York State. That about covers the United States. I am now engaged in the design of a line through Pennsylvania, New Jersey and upper New York involving about 420 miles of pipe line.

During the war I was in charge of the design of the pipe line projects in the China-Burma-India theatre of war, in the design and location of the pipe line system from Calcutta to Dibrugahr, and then from Dibrugahr to Kunming, China, and from Rangoon to Mandalay and thence to the Lido Road.

In Europe I had charge of design and location of pipe line systems from Le Havre to Paris, France.

In South America, I have done work for the Andian National Corporation Ltd. and there is an interesting pipe line which is now being built. It begins 550 miles up the Magdalena river and runs from a point called Puerto-Salgar to Bogota. Over a distance of 84 miles it rises from an elevation of 600 feet to the Bogota plateau where the elevation is 8600 feet, the route going transversely across the eastern Cordilleras. I regard this construction as more difficult from the standpoint of accessibility and transportation, line work, climate, materials and supplies than anything I saw along this route. At the present time I am retained by the Governor of the Department of Cundinamarca. Also I designed and laid out the pipe line system from Umiat to Fairbanks, Alaska, which is a pipe line outlet to serve Petroleum Reserve No. 4 under the commission and direction of Commodore Greenman.

The CHAIRMAN: Well, I think that is all that is necessary in the way of qualifications. You are in.

The WITNESS: Getting closer to home, it was my pleasure and privilege prior to forming Pipe Line Engineering Company to be employed by the Imperial Oil Company as a consultant for the design, location and construction of the Interprovincial and Lakehead Pipe Line system of Canada. I am quite familiar with the prairie provinces and the territory from the standpoint of pipe line construction. More recently I did work on the Winnipeg line from Gretna up to Winnipeg, and also from Sarnia to Toronto. That was a portion of the country that you might generally think of as being particularly difficult construction, but as a pipeliner I would consider it average or normal and in some instances better than average for construction.

In accepting this commission no strings were put on me whatsoever. I was not told what route to select or where to go or where not to go. I merely had to find a route which was feasible, practical, and which could be constructed at a reasonable and proper cost.

In studying the map, Winnipeg seemed to be a focal point. There was not much difficulty of any consequence west of Winnipeg. East of Winnipeg across the province of Ontario some very severe problems were likely to be encountered so two possible routes were explored. However, the weather closed me in and I did not get a chance to explore the combination or alternate route. One of the factors which influenced me in the primary route was the proximity of the trans-Canada highway. In picking a pipe line route you look at the transportation of men, materials, and supplies and working equipment, access roads, rail facilities, and everything of that nature required during the initial stages of construction. You take a look at the same time for the later problems of maintenance, repairs, and service. So, everything being considered, the so-called south route as I referred to it along the lakes, presented some quite difficult construction problems but I have seen much worse in our own country in Pennsylvania. There are certain sections of that country which are difficult, particularly across the Tuscarora mountains and in West Virginia. That is a pipeliner's hell there.

So, there is nothing in this pipe line construction that is insurmountable. It is just big. Some of it is going to be difficult of construction but the average over-all cost comes to a very reasonable and reconcilable figure.

I have a preliminary map here if you care to have it exhibited.

The CHAIRMAN: Is that the map you have for the next meeting? In a general way perhaps the members could see it from where they sit.

The WITNESS: You remember I spoke of Winnipeg being the common point. There was not much of an alternate there. In making this reconnaissance survey I started at Toronto, went to Montreal, back up to Ottawa, along the Ottawa river through what is more or less the clay belt, via Cochrane, Kapuskasing, Hearst, Nikina, Minaki, and on to Winnipeg. Returning from

Winnipeg on the southern route we doubled back to a point around Kenora, through to Fort William, Port Arthur, and Nipigon; through Schreiber and on down to Sudbury.

The route over which I was prevented from flying was the alternate route over the C.N.R. Having flown over the territory I have mentioned though, I was able to evaluate it. There is some rough construction, yes, but it is construction, generally, that any pipeliner can do who is competent, who has the know-how, working equipment and personnel.

Mr. GARLAND: You mentioned Sudbury; does it pass through North Bay?

The WITNESS: I did not get the question.

The CHAIRMAN: Does the line pass through North Bay?

The WITNESS: Wait until I spot North Bay in my mind. It goes into Sudbury, but it goes south of North Bay.

By Mr. Murray:

Q. May I ask a question in a general way, Mr. Chairman? I refer to the amount of attention being given to the question of defence of this country. Would it not be dangerous to put a pipe line near a main line railway?—A. May I answer the question in this way, sir. No.

I do not mean that abruptly please, sir, but since 1898 along the Reading railroad out of Linden, New Jersey, there have been three eight-inch lines in continuous operation. The trains run along there every day.

Q. How often have they been bombed?—A. They have not been bombed as yet but I might answer in this way. In connection with the pipe line I mentioned from Dibrugahr to Calcutta, the Japanese bombed that every day but they never succeeded in securing a direct hit or damaging the line.

Q. Would it not be wiser to follow the trans-Canada highway?—A. If you asked me from a personal standpoint or from the standpoint of construction I would say that the construction would cost less if it did follow that route. I consider it to be the better of the two routes.

Q. It might encourage a better highway, in a straighter line?—A. I am looking at this thing from the impersonal point of view of a pipeliner building a pipe line.

By Mr. Ferguson:

Q. Come back to the point of running a spur line say about 40 miles from your pipe line to a population of about 40,000. In your opinion do they do that in the United States? Do they run a spur line off the main line to supply gas?—A. I know they do it.

Q. It is feasible?—A. There is nothing mechanically that cannot be done if it is economically justifiable. There is nothing to keep you from tying into the line at any point. It is very simple and easy to do.

Mr. MURRAY: Would the construction of this line assist in the redistribution of industry across the country? Would it assist in dispersing the industrial centres and the building up of industries in the small towns back in the country?

The WITNESS: I did not get that.

The CHAIRMAN: Your question is has it had that effect in the United States?

The WITNESS: I think it is axiomatic that wherever cheap fuel is available industry follows.

Mr. MURPHY: It would benefit the small towns along the way?

The WITNESS: I cannot see any reason why it would not benefit everything everywhere, because fuel is the backbone of industry.

Mr. HERRIDGE: I would just like to point out at this stage that last year when Mr. Dixon was giving evidence on another pipe line in respect of our pleas for an all-Canadian route, dealing with the small towns along the route, he told the committee that it had not been the experience of pipe line builders in the States that industry was developed along the pipe line because of the building of the pipe line.

Mr. MURRAY: He was speaking of Texas.

The CHAIRMAN: There are other factors but I think the witness has answered very well—that it does assist.

Now, gentlemen, our witness is burdened by a bad cold. He has been very good to give us the benefit of his experience and so I wonder if there are any other questions?

By Mr. Harkness:

Q. How would the cost of construction through this area in Ontario which is largely rock, in the Great Shield, compare with the cost of construction on the prairies?—A. It is considerably higher, sir.

Q. Can you give a specific figure, as to how much higher it would be?—A. From two to three times. That is due to one other thing aside from the rock.

Q. I beg your pardon?—A. That is due to one other thing aside from the rock. In your prairie provinces you have a two-mile grid system where you do have access roads. They are not passable in certain seasons of the year but in certain locations through Ontario it would be necessary to construct access roads in order to reach your pipe line right of way. For that reason your cost would be accelerated over what it would be if the same location were dumped into Pennsylvania or West Virginia where the territory is literally laced with roads.

Q. In Ontario would you bury this line or not?—A. I would only half bury it.

Q. That would require blasting wherever you buried it?—A. Yes. That is done for mechanical reasons and for other reasons. If you would like me to enumerate them I could.

Q. I know something about this because I come from Alberta.—A. The idea of half-burying a line is to provide an anchor saddle for the line to protect it through your rock. This is protecting the corrosion protective materials by a rock shield or covering of an approved or acceptable type and then earth is back-filled over the top of the line. That is done so as to form a snow barrier to keep your temperatures down. At the same time you provide an anchor for the pipe line, and you guard to some extent against accidental damage and to a great extent against intentional damage.

Q. In effect you would have to blast a trench for this line?—A. Yes.

By Mr. McCulloch:

Q. Would the pipe be fully covered?—A. It would be just a semi-circular mound. If I wanted to go across this pipe line and it were laid on top of the ground, I would have to build a ramp over it or drag it out my of way.

By Mr. Harkness:

Q. I presume that construction of the line would be done by a number of pipe line construction firms, such as Williams Brothers and so on?—A. Unfortunately there is a very limited number of pipe line construction firms which have the know-how, the work equipment and the organization to undertake a job such as this one.

Q. All construction would not be done by one firm?—A. I doubt if any one firm has sufficient amount of work equipment or individual personnel to undertake it, particularly in view of the fact that there are less than sixteen hundred qualified pipe line welders in the United States.

Q. Particularly because there would be a number of sub-contractors?—A. Yes. The contractors would rely very heavily upon the talents of Canadian contractors especially in the way of constructing roads, blasting, ditching and things of that kind.

By the Chairman:

Q. You are giving evidence as the head of an engineering firm. You do not undertake the work yourself?—A. I have been in the construction business.

Q. Are you in the construction business now?—A. No. I am doing engineering design and inspection work entirely.

The CHAIRMAN: If there are any other questions, perhaps we might have them now. We have another half hour. Perhaps the members of the committee would like to have a chance to hear a representative of the financial end of it. Thank you very much, Mr. Warterfield.

Mr. TOLMIE: I think mention has been made of market demand and I wonder if we could call now upon Mr. George Shattuck who is a representative of H. K. Ferguson Company, Ltd., the marketing and survey people. He would describe the procedure which they have adopted in the market survey, and would give you some generalizations from it. His report is still in the "finalizing" stage and he has yet to have it drawn up and printed. But he can give you the highlights at this time.

The CHAIRMAN: Is it the wish of the committee that we hear from Mr. Shattuck now? Come forward Mr. Shattuck.

Mr. J. G. Shattuck, called:

The WITNESS: Mr. Chairman, H. K. Ferguson Company Limited was asked to verify the fact that there are sufficient natural gas markets in the eastern part of Canada to support a pipe line from Alberta through to Toronto and on to Montreal.

Beginning about Christmas time we put a crew of industrial engineers acquainted with fuel consumption in Ontario and Montreal Island to determine the amount of industrial consumption of fuel in those areas.

After Christmas several of the men were detailed to go westerly and to follow the route all the way back as far as Regina and Moose Jaw. During the same time the Research members of our crew have been examining data showing the percentage of residential and commercial sales in those areas and the prices competitive with present fuels.

Our field work is about completed but we shall have to review all of it and to fill in data that has been missed. We hope to have the completed results by about the middle of April.

However, our work has gone far enough so that we are assured that, at any rate, the market would absorb one hundred billion cubic feet of gas a year at prices that will service the pipe line, pay the operating costs, and service the debts necessary to finance construction.

By Mr. Ferguson:

Q. Have you any idea of the possible reduction in cost over present methods of heating and over the use of gas, let us say, for the City of Toronto?—A. I am somewhat dependent upon my United States experience. I believe that in most cases you will find actually fuel will cost about one half what it does cost with manufactured gas. However, I would not like that opinion quoted against Canadian utilities here because I have not studied the question.

Q. Would you say that the cost to the consumer for your fuel would be one-third less than it costs today?—A. You mean, if they heated their houses with manufactured gas?

Q. Yes.—A. Yes, I think that would be a conservative statement; but not necessarily so as to cooking and water heating. Those sales are depended upon by local utilities to maintain most of their fixed costs, and they might not be able to reduce that cost.

Q. Would the cost to the local utility for the fuel they are delivering, outside of their cost of operation, be one-third less than their present cost of fuel?—A. I do not believe I could answer your question.

Q. Whatever burden the utilities might have would be a horse of another colour; but if they are paying one-third less for the product which they are supplying, do you think that the product could be sold for one-third less to the consumer?—A. They might make reductions when they started selling the gas, but I would hesitate to give any opinion.

Q. Have you had any experience with studies of a similar nature?—A. It has been found generally that after natural gas has been introduced into an area which has used manufactured gas for heating that rates may be reduced after several years service. Some cities do it immediately, while others do it after some years.

Q. So you think that we can look forward to a reduction in the cost of heating our homes in Canada?—A. Yes.

By the Chairman:

Q. But you cannot say how much?—A. No.

Q. Your experience has not covered Canadian cities, utilities, and commissions. All those factors would come into the question, would they not?—A. Our assignment did not cover it.

Mr. LENNARD: It says in the circular:

“...a preliminary calculation in January showed a competitive advantage of \$1 a ton over American anthracite coal...”

That would be only about five per cent, would it not?

The CHAIRMAN: It is difficult for the witness to say how much.

Mr. LENNARD: It does not say who is the author of the pamphlet. We got it through the mail.

The CHAIRMAN: Are there any further questions?

By Mr. Smith:

Q. What control does the Public Utilities Board of any one of the provinces have over the price which you will get for the supply of gas to the distributing company? Is there any or none?—A. I think that is entirely out of my experience. I do not think I can answer your question.

The CHAIRMAN: Are there any other questions?

By Mr. Harkness:

Q. Have you any figure to show what the cost is going to be at your main gate at Princess?—A. No. It is true that I have been given a figure to assume at this time, but I do not believe that it is a figure that should be quoted. It was just a starting assumption for my work.

Q. What I was going to ask you next was: what is your estimated cost of transporting one thousand cubic feet of gas? In other words, I think we should have some idea of what the estimated cost of this gas is going to be at your main gate, and what the estimated cost is going to be for transporting it,

let us say, to Toronto?—A. We would have to wait until the final marketing estimates are completed, because the costs of the line tend to vary in proportion with the amount of gas handled. It is more or less a lump sum for a large part of the cost. For instance, if you have ten per cent more gas handled, the cost becomes roughly ten per cent less.

Q. The pipe line companies we had appearing before us last year were able to give us what they estimated the cost of gas would be and what they estimated the cost of transporting it would be, that is to say, what they estimated it would cost to deliver one thousand cubic feet of gas to its destination.—A. I think that by May we shall have those figures to quote, that is, when my work is completed.

Q. You have not got them now?—A. They would not be reliable.

By Mr. Follwell:

Q. Did you survey any place where the municipalities had no set-up for the distribution of gas?—A. Yes, we have.

The CHAIRMAN: Is that all you have?

By Mr. Ferguson:

Q. Are there any limits on the profits you can make or the length of period of time that you require to write off these expenditures? Suppose you could write these expenditures off, say, in ten years, with the price of gas selling at a price which would be advantageous for the consumer to buy rather than to buy coal? If you can write this project off in ten years, then stockholders would be able to expect good profits?—A. I think it is a widely accepted utility practice to try to serve as many people on as wide a market as you can economically, and that will attract investors to the project. In other words, serve as many as you can at a fair price.

Q. For instance, in the case of the Bell Telephone Company there is a restriction on their profits, yet there is no restriction on the profits of pipe lines. I do not suppose there will be many pipe lines built across Canada. To your knowledge is there any restriction on the profits you can make?—A. I do not understand Canadian law very well.

Q. In the United States is there a limit to the profits a pipe a line can make there?—A. Yes, there is.

Q. You do not know if there is one here in Canada or not?—A. No.

The CHAIRMAN: Mr. Matthews of the Department of Transport could answer that this afternoon.

Mr. MURPHY: Are we going to have evidence before the Committee as to the cost of the product at the various places?

The CHAIRMAN: That is up to the committee.

The WITNESS: I did not understand the question.

The CHAIRMAN: The question was as to whether the cost at different points would be available so that we could make a comparison with the present setup and determine how much savings would be likely to accrue to a given municipality or a given commission in a municipality.

The WITNESS: I believe that the data we are now preparing to present to the Alberta board would largely answer that question.

Mr. FERGUSON: What is that again?

The WITNESS: I believe that the data we are now preparing to present to the Alberta board would largely answer your question. That will be completed about the first of May.

The CHAIRMAN: If there are no other questions at this point, Mr. Tolmie may wish to introduce another witness.

Mr. TOLMIE: Mr. Chairman, before I call on Mr. Natleson, a partner of the firm of Lehman Brothers in New York, the last witness was asked whether the sale of gas on this project would be subject to some kind of control with regard to price. Now, I only know that you have in most of the provinces of Canada public utility commissions, and these utility commissions primarily govern the profit hydro electric companies can make. We have not had much experience in Canada yet with natural gas companies but my understanding is that these boards will have jurisdiction.

Mr. HARKNESS: We have regulations in Alberta. The public utilities commission sets the rates there.

Mr. TOLMIE: Yes, I understand so, but when it comes to the eastern provinces I understand the provincial utilities commissions will take over control, and the rate structure will be subject to the particular provincial commission.

Mr. HARKNESS: Yes, I think the setup will be the same as in Alberta.

Mr. FERGUSON: The utilities commissions may only dictate the difference between the purchase price and selling price, they might have nothing to do with the pipe lines purchase price. They might say you can make so much of a profit but that has no bearing on what the pipe line people are paying for the product.

Mr. TOLMIE: With respect sir, I would suggest that the utility commissions would assume control and under provincial jurisdiction would have the right to control the purchase price that the local utility would pay. They would have to be satisfied with respect to the fairness of that price, otherwise they would not allow the local city utility to buy the gas from them. They would dictate a price, as some provinces have done in other types of service such as electricity and, I believe, in British Columbia they have attempted to do the same thing with respect to petroleum and gasoline.

Mr. FERGUSON: Are you sure that they have that control? Are you simply building a pipe line without having appeared before the various utilities commissions in each province that will say we will permit you to charge so much and no more? Are you going blindly ahead to build this pipe line and then run into provincial utility commissions, who will say they will not allow you to charge that amount?

Mr. TOLMIE: We expect we will have to meet the provincial utility commissions in each province, but that procedure is encountered by every pipe line company in other areas. In the United States where each state utility commission exercises the same control, that is done.

Mr. FERGUSON: And you believe they have control over your selling price to the local utility, is that right?

Mr. TOLMIE: That is right, sir. I do not believe the jurisdiction lies with the dominion and, therefore, it must lie with the provincial, and they have not exercised it in the eastern provinces yet because the problem has not come up to them. We expect they will follow the same procedure as they do in control of electrical energy, and as Alberta has done within its own borders.

Mr. GREEN: I think there is a defect in the Pipe Lines Act which authorizes the board of Transport Commissioners to put controls on oil but not on gas.

The CHAIRMAN: Mr. Matthews could inform us on that and clear this point up.

What is the other point you were going to talk about, Mr. Tolmie?

Mr. TOLMIE: I was going to introduce Mr. Natleson. He is a partner of Lehman Brothers, a firm of bankers in New York. As I mentioned, this firm has indicated a willingness to undertake the organization of an underwriting group. I may say briefly that Mr. Natleson is in charge of the industrial section of Lehman Brothers.

Mr. Morris Natleson, called:

The WITNESS: Mr. Chairman, I have been with Lehman Brothers for about twenty-five years and have been a partner for a number of years. Lehman Brothers has been associated with a great many large and substantial underwritings and in the development of a number of new industries. Most notable, I think, is our experience in developing the aviation industry in the United States. We were directly concerned, with most of the major air transport lines at a time when most other banking houses were a little bit afraid of them from the financial point of view.

In this case, we feel that we can perform a real service for Canada as well as for our friends of Delhi Oil Company in making available financial aid to develop resources which unfortunately exist so far away from your centres of population and from the area of your country which is in most need of those resources. As far as our relations with Delhi Oil Company are concerned we feel they are competent to develop a pipe line, even one as big as this. They have built pipe line projects in the past, and have found and developed large gas reserves. They have gone ahead with their own money in this project to develop gas reserves in your province of Alberta. We are also impressed with the calibre of experts they have selected. It may be that when we arrive at the point where financing will be undertaken, just prior to the construction of the line, we will find it necessary, with a view to satisfy investors, to make spot checks of our own with other experts, and for that we will spend our own money.

This is a very substantial project, a \$250 million project, which is about as big as any project that has been financed in the United States, and it will require on our part, a very large banking group. We would like very much to have the co-operation of the major banking houses in Canada to permit us, through them, to attract Canadian investors to the purchase of bonds as well as of capital stock. Obviously, at this point we can have very little information as to specifically what the costs are going to be and what annual charges will be, since the bond market does not remain static, and this financing is likely to take place within a period of a year, probably not before eight or ten months.

There was one question asked which is not in my province but I do have a thought on it. The question was asked about the prices of gas in particular communities. Gas is usually sold to utilities on the basis of a long term contract, and that contract is normally made prior to the time that gas is ready for delivery. At the time the contract is made it occurs to me that the local rate body in each province would probably want to examine the contract to see that the contract is suitable for the particular public utility. We also hope that we can line up, and I think it will be necessary to do so before the pipe line is financed, the assurance that there is enough gas available in Alberta and under contract to the pipe line to support the requirements of the users on the other end of the pipe line. We probably will require contracts, and I think they will be forthcoming, from major industrial users who will wish to assure their requirements, for a long period of years. At the time these contracts are written, which probably will be prior to the time the pipe line is built and prior, perhaps, to the time it is financed it will be possible to specifically determine what the selling price of the gas will be.

From the financial point of view and from the marketing point of view, we will have a pretty good idea of what the pipe line requires to pay its debt service, to amortize its debt and pay for maintenance, cost of transportation, etc.; so that the contract will have to be based at that time on these estimates of cost.

And then, again, in answer to a question by one of the honourable gentlemen—about rate for gas to public utility companies. The contract with utilities might very well be on a sliding scale so as to provide for reductions in rates in the future as sales volume increases.

The CHAIRMAN: I believe that Mr. Warterfield mentioned that this line is one of the longest ever undertaken, that it exceeds the line which was built in the United States by some 400 miles.

The WITNESS: That is right, Mr. Chairman. I do not want to minimize the size of the undertaking; but the cost is somewhat lower than it would be in the United States; even though there is some difficult terrain, the cost should be somewhat lower because so much of the terrain is comparatively easy to build over. As I said, I am not an engineering expert. The engineers will be the ones to determine the ultimate cost of this line; but it appears to us to be completely feasible and serve an economic purpose, and can deliver gas over this route, 2,200 miles, to a point like Montreal at prices competitive with other fuels.

By the Chairman:

Q. You have built and operated other pipe lines?—A. We have been in a number of issues of other pipe line companies.

Q. So that you would have the benefit of your experience in their construction and operation?—A. Yes. We have been in a number of pipe line businesses—without refreshing my memory as to the details I could not tell you the lines specifically—but we have been in a number of them. There are four or five major pipe lines in the United States, and we have participated in financing most of them.

The committee adjourned to meet again tomorrow March 7, 1951, at 11 o'clock a.m.

